

Abstract

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The invention is directed to a method of making a fluoride crystalline optical microlithography lens element blank and qualifying the blank for formation into an element for use in a microlithography system. The blank is qualified by measuring the absorption spectrum from 200 to 220 nm for a 205 nm lead absorption spectrum or by measuring diffracted radiation. The characteristics of the qualified fluoride optical lithography lens blank ensure its beneficial performance in the demanding microlithography manufacturing regime which utilizes high energy short wavelength ultraviolet laser sources. The fluoride crystalline optical lithography lens element blanks are comprised of multiple adjoining abutting crystalline subgrains with low boundary angles.